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The 2003 Missouri School District Computing Census Introduction

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The Census of Technology (COT) is designed to assess Missouri's continuing investment in K-12 education technologies and to help guide forward efforts. It provides important data to share with state and national decision-makers to increase public awareness and advance public policy and support for education technology. It provides local school districts with data to help identify needs and develop strategies to facilitate school improvement processes.

The COT has been collected annually since 1997. Prior to 2001, the Department of Elementary and Secondary Education (DESE) contracted with the University of Missouri's Office of Social and Economic Data Analysis (OSED) to administer the project. In 2001, the census was incorporated into the April cycle of the Department's online core data collection system. The 2001 COT was the first to be completed by all districts; data collected prior to 2001 were adjusted to estimate the entire population.

The COT has two parts: a district-level census and a building-level census. Information is to be completed based on the census date of March 1. The submission deadline date is April 15. The District Census assesses the levels of planning and training for the district as a whole and concentrates on hardware, software, and levels of connectivity for the administrative buildings and offices. Completed by district-level administrators and/or technology specialists, the District Census includes information for all Missouri school districts (524). The Building Census assesses planning and training needs for individual school buildings and focuses on hardware and levels of Internet connectivity in computer labs, libraries, and classrooms. Completed by building-level administrator or technology contacts, the 2003 Building COT includes information for 2,250 public schools. Exempted buildings include preschools and juvenile centers.

The 2003 Missouri Census of Technology was revised to better align with goals and objectives of the 2002-2006 Missouri Education Technology Strategic Plan and the Title IID Ed Tech Program of the federal No Child Left Behind Act. A significant number of items from the 2002 COT were deleted because they no longer provided useful data. [The 2003 Census has 40 items compared to 80 items on the 2002 COT.] Several items were updated or fine-tuned to yield more meaningful data. In addition, a few items were inserted to address new federal and state goals.

As in previous years, the 2003 Missouri Census of Technology Report arranges the data for both the district and building levels according to the following areas: technology planning, technology professional development, hardware and support, Internet connectivity-distance learning, technology usage, and technology funding. Where feasible and appropriate, this report presents and compares information from previous years. Aggregated responses for the district and building census forms are provided in Appendix A and B, respectively.

This report is one of several documents that examine the use and effectiveness of education technologies in Missouri. Other evaluative information can be found in the

Missouri Education Technology Strategic Plan and annual status reports, eMINTS Program research reports, annual technology program reports, project descriptions and annual evaluation narratives, and a series of *Newsline* articles.

For additional information regarding the Census of Technology, contact the Instructional Technology section by telephone (573-751-8247) or email (instrtech@dese.mo.gov).

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The 2003 Missouri School District Computing Census Executive Summary

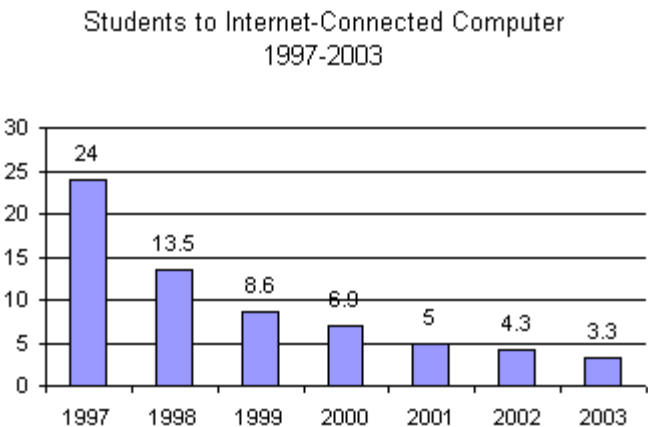
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The 2003 Census of Technology shows that Missouri schools continue to improve access to education technologies for administrators, faculty, staff, and students. More classrooms are wired, more schools are connected, and students-to-computer ratios have decreased. Administrators, teachers, and students continue to become better skilled in using the technologies and, more importantly, continue to increase the frequency in which they use education technologies in meaningful ways.

Building Access – Of the 2,250 school buildings reporting, 1,878 (83 percent) have a T1 or higher Internet connection, as compared to 1,732 buildings in 2002 and 1,490 buildings in 2001.

Classroom Access – Out of 60,248 classrooms, 97 percent are wired for the Internet, as compared to 91 percent classrooms in 2002 and 84 percent in 2001. Just over 85 percent of the classrooms have at least one Internet-connected computer, compared to 79 percent of the classrooms in 2002 and 61 percent in 2001.

Computer Access – Out of 270,368 computers located in the buildings, 242,981 are located in instructional rooms: classrooms (138,672), computer labs (83,897), and library media centers (20,412).



Students to Internet-Connected Computer:
1997=24; 1998=13.5; 1999=8.6; 2000=6.0; 2001=5;
2002=4.3; 2003=3.3

- ▶ The 2003 ratio of students per computer (all computers) is 3.3, compared to 3.8 in 2002 and 2001.
- ▶ The ratio in the instructional rooms is 3.7, compared to 4.2 in 2002 and 4.4 in 2001.
- ▶ The 2003 ratio of students per Internet-connected computer is 4.0, compared to 4.3 in 2002 and 5.0 in 2001.
- ▶ The ratio in the instructional rooms is 4.0, compared to 4.8 in 2002 and 5.5 in 2001.

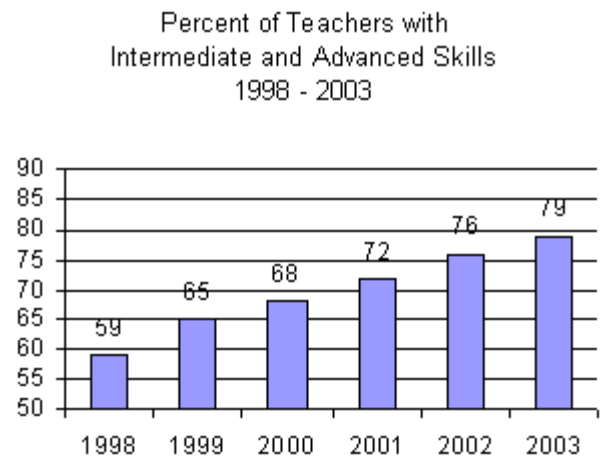
Principal Technology Skills – In 2003, 97 percent of the principals routinely use email, compared to 92 percent of principals in 2002 and 74 percent in 2001. The percent

routinely conducting online research is 79 percent, compared to 69 percent in 2002 and 58 percent in 2001.

Teacher Technology Skills – In 2003, 76 percent of teachers routinely use educational software, compared to 71 percent in 2002 and 59 percent in 2001. The percent routinely using technology for lesson plan preparation is 64 percent, compared to 59 percent in 2002 and 45 percent in 2001.

Student Technology Skills – In 2003, 68 percent of students routinely use technology for writing assignments, compared to 65 percent in 2002 and 52 percent in 2001. The percent routinely using technology for research is 63 percent, compared to 59 percent in 2002 and 49 percent in 2001.

- ▶ In 2003, 79 percent of teachers have intermediate and/or advanced technology skills, compared to 76 percent of teachers in 2002 and 72 percent in 2001.
- ▶ Approximately 90 percent of principals have intermediate and/or advanced technology skills, compared to 82 percent in both 2002 and 2001.
- ▶ About 88 percent of sixth-grade students are computer literate, compared to 86 percent of students in 2002 and 84 percent in 2001.



Percent of Teachers with Intermediate and Advanced Skills:

1998=59; 1999=65; 2000=68; 2001=72;
2002=76; 2003=79

A compendium of the 2003 Census of Technology findings follow:

Technology Planning

- ▶ All districts have state-approved technology plans
- ▶ 2,126 school buildings (95 percent) have building technology plans

Technology Professional Development

- ▶ 85% of districts have board-approved education technology standards
 - ▶ 81% have locally developed standards and 24% have adopted the National Educational Technology Standards (NETS)
 - ▶ 67% have standards for middle schools/junior high students (grades 6-8), compared to 63% for students in grades 3-5, 59% for high school students (grades 9-12), and 58% for K-2 elementary students
 - ▶ 77% have standards for teachers, 71% for school administrators, and 61% for staff

- ▶ The percentages of staff with intermediate and/or advanced skills in the use of education technology are as follows:
 - ▶ 89% of district office administrators
 - ▶ 90% of school building administrators
 - ▶ 96% of technology staff
 - ▶ 79% of teachers
 - ▶ 69% of school services staff
- ▶ Schools typically offered four days of professional development activities during the 2002-2003 school year where teachers could learn or upgrade their technology skills. The training offered included:
 - ▶ 16 hours – using software applications
 - ▶ 14 hours – curriculum integration
 - ▶ 11 hours – teaching applications
 - ▶ 10 hours – using Internet resources
 - ▶ 8 hours – introduction to operations
 - ▶ 3 hours – using assistive technology devices

Hardware and Support

- ▶ On average, districts provided 2.18 FTE for technical maintenance and support, while school buildings reported .30 FTE
 - ▶ School building technical support was most likely provided by district staff, followed by school certificated staff and other school staff
- ▶ District administrative/office staffs use 15,235 computers
 - ▶ 93% are PCs or PC-compatible and 7% are Apple/Mac machines
- ▶ School buildings provide access to 270,368 computers,
 - ▶ 82% are PCs or PC-compatible and 18% are Apple/Mac machines
 - ▶ 85% of the PC-compatible computer run on Windows 2000 or earlier (older), while 90% of the Apple/Mac machines run on OS 9.x or earlier
 - ▶ 90% are located in a classroom, computer lab, or library media center (LMC)
- ▶ Of the 66,290 classrooms, computer labs, and LMCs,
 - ▶ 56% have telephone access
 - ▶ 96% are wired for the Internet
 - ▶ 88% have multimedia-equipped computers
 - ▶ 86% have one or more multimedia computers with a direct Internet connection
 - ▶ 23% have a teacher workstation that includes an Internet-connected computer, printer, and projection device
- ▶ The typical time-frame for resolving technical problems and repairs is under three working days

Internet Connectivity – Distance Learning

- ▶ 85% of the school buildings have a T1 or higher Internet connection
- ▶ 80% of the buildings are connected to the district office and all other buildings in the district through a local or wide area network

- ▶ Novell is the predominant server software in use, followed by Windows NT, Linux, and Apple Share
- ▶ Over 1,000 servers support Internet filtering (1424), email (1328), and web (1117) services
- ▶ Over 1,300 buildings have distance learning access via cable television, while 1,100 have desktop technology, 642 have satellite, 390 have interactive television (I-TV) and 114 have compressed video technologies

Technology Usage

- ▶ 96% of districts report having technology integrated in their core content curriculum: 96% in communications arts, 90% in mathematics and science, and 89% in social studies
- ▶ Email accounts are provided for schools administrators in 96% of the districts, teachers in 95% of the districts, and other district staff in 91% of districts. As for students, districts provide email accounts to high schools students in 108 districts, to middle schools students in 81 districts, students in grades 3-5 in 58 districts, and K-2 students in 31 districts
- ▶ On average, districts estimate that 88% of their sixth-grade student population is computer literate, with over half of the districts reporting at least 95%
- ▶ Buildings report the following routine use of technology, by application and user type

<i>Application</i>	<i>Principals</i>	<i>Teachers</i>	<i>Students</i>
Educational software	41%	76%	80%
Email	97%	87%	15%
World Wide Web	94%	88%	71%
EBSCO host database	27%	33%	29%
Electronic encyclopedia	20%	40%	44%
Automated Library Card Catalog	26%	49%	57%

- ▶ Buildings estimate the following routine uses of technology, by function and user type

<i>Function</i>	<i>Principals</i>	<i>Teachers</i>	<i>Students</i>
Produce media/multimedia products to demonstrate learning	46%	43%	37%
Produce written/print products to demonstrate learning	73%	77%	68%
Conduct online research	79%	74%	63%
Communicate with parents and students	73%	64%	7%
Lesson plan preparation	16%	64%	Na
Manage student records (spreadsheet/database)	81%	64%	Na
Track student performance	78%	69%	Na
Assess Student Performance	67%	64%	Na
Communicate with DESE staff	62%	22%	Na
Instructional delivery/presentation	37%	46%	Na
Enrolled in online courses (this year)	4%	5%	Na

- ▶ Buildings, on average, report that .71 FTE is responsible for the leadership and support of teachers in integrating technology. Persons most commonly responsible include the school administrator (in 53% of the buildings), technology coordinator (49%), teacher (46%), and instructional technology specialist (24%)
- ▶ Buildings estimate that 41% of the teaching staffs are able to fully integrate technology into the curriculum
- ▶ Over 2,000 buildings use email as a technology-mediated feedback system, followed by voice mail (1053), listservs (354), homework hotlines via the telephone (280), and homework hotlines via the web (160)

Technology Funding

- ▶ For 2002-2003, districts projected technology expenditures of \$107,992,768 compared to FY2002 expenditures of \$96,761,173
- ▶ Districts project spending \$90,567,797 next fiscal year, with less money being spent on hardware, instructional software and infrastructure/retrofitting; more funds spent on administrative software; and about the same amount of funding on professional development, technical support, and connectivity/distance learning
- ▶ 374 districts (71%) applied for FY02 E-rate discounts, amounting to approximately \$41,676,486; of which 61percent was used to support education technology

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The 2003 Missouri School District Computing Census District Census Report

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This section of the 2003 Census of Technology Report analyzes the district data collected, compares the data with previous years' data, and notes interesting trends or anomalies over time. The 2003 District COT was significantly revised and addresses 14 items, as compared to 36 items that were asked in 2002. All 524 Missouri school districts completed the COT in 2003. In general, district data indicate continued improvement over the previous year(s). A copy of the survey, completed with aggregate data, is provided as Appendix A.

Technology Planning

A school district's long-range technology plan provides a road map for how the district will implement strategies that promote the district's mission, advance its comprehensive school improvement plan (CSIP), and improve teaching and learning. The Department of Elementary and Secondary Education began approving technology plans in 1997 as a requirement for the E-rate program. Early district technology plans dealt mostly with hardware and equipment and did little to address integration, student learning, or technology professional development. Beginning in 1999, a state-approved technology plan became a requirement for participation in the technology acquisition (TAG) grant program and/or the MOREnet Technology Network Program.

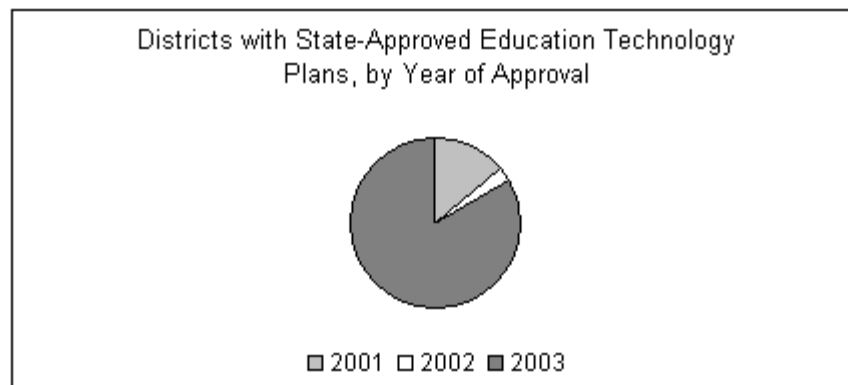
With the passing of the federal No Child Left Behind Act (NCLB) in 2001, the Department developed the 2002-2006 Missouri Education Technology Strategic Plan and updated the scoring criteria to approve district technology plans accordingly. Both the plan and scoring criteria focus on the development of plans that promote effective teaching strategies and student achievement as well as adequate infrastructure.

In accordance with the NCLB and the Title IID Ed Tech Program, districts were given a one-year waiver to prepare (through June 30, 2003). As such, the number of items related to district technology planning was reduced from four in 2002 to two in 2003.

For item one, the data collection system filled in the state-approval date. As Figure 1 below indicates, only a few (16) districts elected to have their technology plans approved in 2001, while the vast majority (451) waited until 2002 to submit plans for state approval. [67 districts that had plans approved in 2001 and that received the maximum score of "8 of 8" met the NCLB requirements and did not have to re-submit plans in 2002 or 2003.]

Figure 1

Status of District Technology Plans



Item two asked districts to identify business or higher education partners that help support the district's technology initiatives. As Table 2 indicates, the number of districts that report having a technology partner has fluctuated the past five years. However, the reporting of the types of partners is more consistent. A district "technology" partner is most likely to be a college or university, than a technology-related business or a non-technology related business.

Table 2

Districts With a Technology Business or Higher Education Partner, 1998-2003						
	1998	1999	2000	2001	2002	2003
Districts with Technology Partners	22%	27%	29%	31%	27%	31%

Technology Professional Development

Instead of the five items addressed last year, the 2003 COT only asked questions about district technology-related standards and the estimated skills levels of district administrators and support services staff. Item three asks the district to identify board-approved education technology standards that are used in the districts and the populations for which the standards apply. This item was added in the 2002 COT to align with the NCLB and the new state technology plan. The state plans calls for schools to have established standards and endorses the National Educational Technology Standards (NETS) published by the International Society for Technology in Education (ISTE).

As Figures 3 and 4 show, the vast majority of districts have board-approved standards for both students and for school employees. Figure 3 shows that four out of five (423) districts have developed their own education technology standards, followed by one in four (124) that have adopted the NETS, and one in twelve (43) that adopted the Standards for Technological Literacy (STL) endorsed by the International Technology Education Association (ITEA). Thirty districts report having other standards. Nearly 80 districts (15 percent) report having no board-approved standards.

Figure 3

Districts with Education Technology Standards, by Standard Type

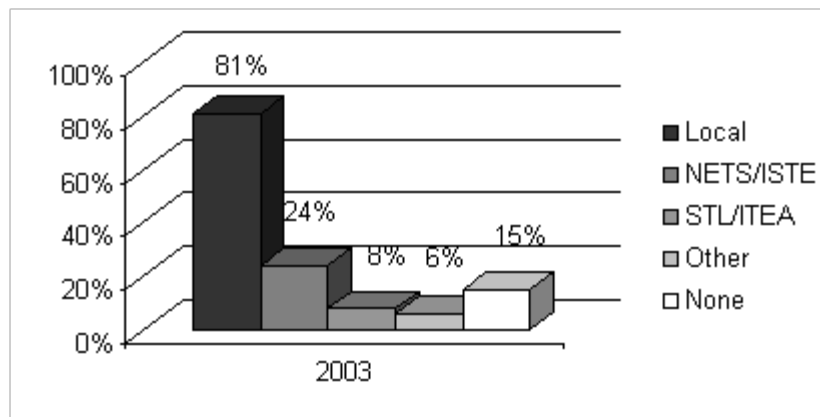
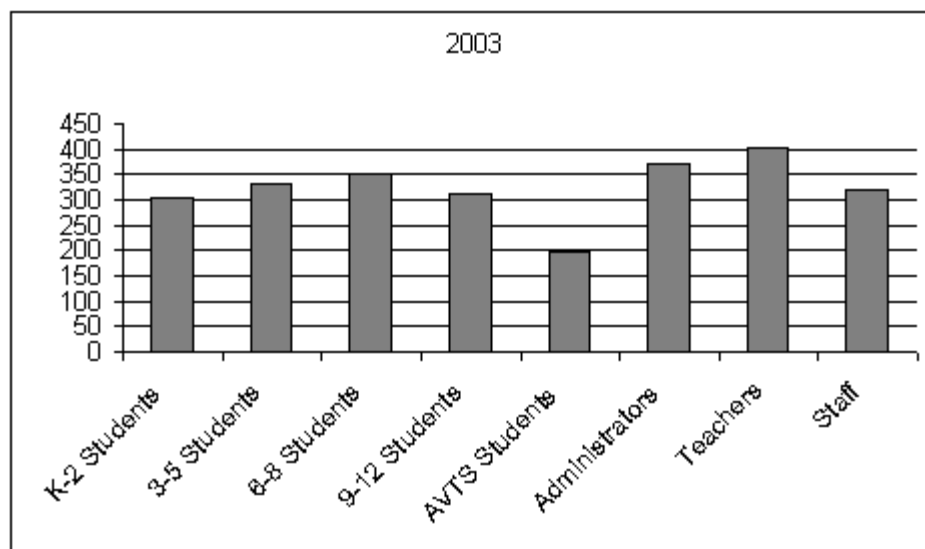


Figure 4 indicates that over 350 districts (67 percent) have student technology standards. Districts are most likely to have established standards for middle school students (353 districts), then students in grades 3-5 (330), followed by high schools students (311), and K-2 students (305). As for district employees, most districts (402) are apt to have standards for teachers, followed by school administrators (372) and school support services staff (319).

Figure 4

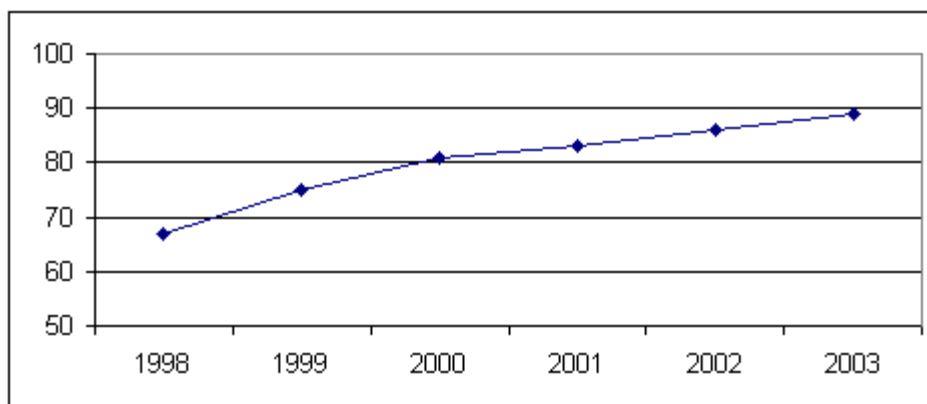
Number Districts with Education Technology Standards, by Population



Item four asked districts to estimate the skills levels of administrators and support staff located in the administrative offices. In 2003, 84 percent of support services staff and 89 percent of administrators are estimated to have intermediate or higher skills in the use of technology. While this was the first time COT asked about the skills of the support services staff, Figure 5 indicates the steady increase in administrators' skills since 1998.

Figure 5

Administrators with Intermediate and/or Advanced Technology Skills, 1998-2003



Hardware and Support

In contrast with six items in 2002, three items address hardware and support issues. Item five asked districts to estimate the total number of district-level, full-time equivalent (FTE) staff who are responsible for technical maintenance and support. On average, districts provided 2.18 technical support staff in 2003, compared to 2.0 in 2002. While it isn't likely that all districts have two district technology staff persons, it is encouraging to see the number of staff increase to deal with the growing numbers and kinds of education technologies in place in the districts.

For item six, districts entered the quantities of computers located in district administrative office(s). In keeping with findings from earlier years, administrative offices have computers that are predominantly PCs or PC-compatible. In 2003, there are over 15,000 computers, comprised of 94 percent Windows-based machines.

Internet Connectivity – Distance Learning

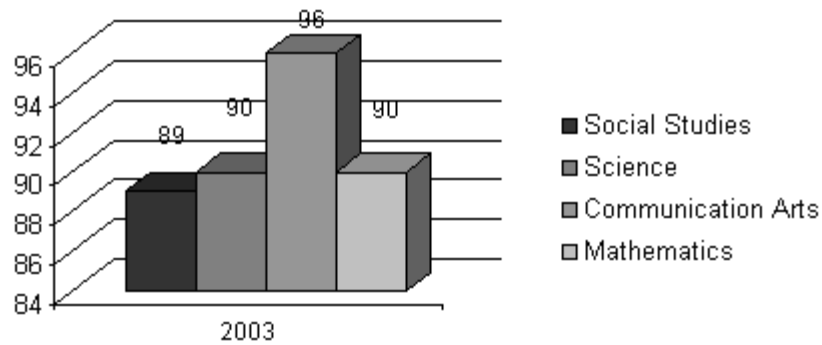
Only one connectivity item is asked in 2003, compared to last year's six items that also included several sub-parts. Item eight asked districts to identify the operating systems used by servers located in the districts' administrative buildings/office. Novell is the predominant system (used in 285 districts), followed by Windows NT (152), Windows 2000 (91), Linux (75), and Apple Share (28).

Technology Usage

Instead of the 11 items addressed in 2002, the 2003 COT has three technology usage items. The first, item nine that asked if technology is integrated in the district's core content areas, was revised in 2003. Rather than asking districts to estimate "the percentage of core areas" where technology is "incorporated in curriculum guides", the 2003 item asked districts to indicate the specific content areas where technology is "integrated". Figure 6 shows that technology is integrated in communication arts for 502 districts (96 percent), science for 472 districts (90 percent), mathematics for 469 districts (90 percent), and social studies for 464 districts (89 percent).

Figure 6









Status of Technology Integration in District Curricula



The second technology usage item, item 10, asks about district-provided email accounts. This item was also revised. Rather than asking for total number of accounts provided for students, teachers, and administrators, the 2003 item asks about accounts for support services staff and breaks down the student population into grade-level spans of K-2, 3-5, 6-8, 9-12, and area vocational-technical school (AVTS). Rather asking for numbers, the 2003 item asks for the estimated age of each population that is provided with accounts.

Table 7 details the email accounts provided by districts in 2003. While the vast majority of districts provide email accounts to employees, few districts provide accounts to students. Over 90 percent of districts provide accounts to employees: 96 percent (504) provide accounts to administrators, 95 percent (499) provide accounts to teachers, and 91 percent (477) provide accounts to support services staff. On the other hand, only 6 percent of districts (31) provide accounts to primary-school students, 11 percent (58) to elementary students, 15 percent (81) to students in middle school, and 21 percent (108) to high school students. The districts that do provide email accounts to students, however, do so with high percentage rates, as indicated by the average and median percentage rates listed in the table.

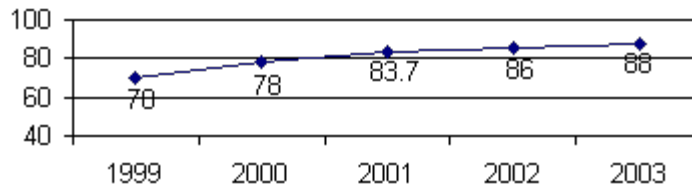
Table 7

District-Provided Email Accounts				
Population	Number Districts	District Average – All Districts	District Average and Median Rate – Districts Providing Email Accounts	
District Employees				
 School administrators	504	96%	95%	100%
 Teachers	499	95%	92%	100%
 Support services staff	477	91%	79%	100%
Students				
 K-2	31	6%	70%	100%
 3-5	58	11%	66%	100%
 6-8	81	15%	69%	80%
 9-12	108	21%	52%	50%
 AVTS	76	13%	87%	100%

The third usage item, item 11, asks districts to estimate the percentage of students in the 6th grade who are computer literate. Literacy is defined as being able to perform basic computer operations. Figure 8 shows a steady increase in the percentage rate of computer-literate 6th grade students from 70 percent in 1999 to 88 percent in 2003.

Figure 8

Computer Literate Students – Grade 6, 1999-2003



Technology Funding

Three items asked districts about their technology funding habits. Item 12 asks districts to detail costs for “last” and “current” fiscal years and project costs for “next” fiscal year. From 1999 to 2001, districts consistently reported budget costs averaging \$60-\$64 million. In FY02 and 03, technology costs exceed \$90 million. Table 9 indicates total projected and actual expenditures for major budget items, for fiscal years 2000, 2001, and 2002. [Note that the item was revised in 2002 to better align with major cost categories addressed by “total cost of ownership” studies.]

Table 9

Technology Budgets and Expenditures, 2001-2003

<i>Technology Budget Items</i>	<i>FY 2001</i>		<i>FY 2002</i>		<i>FY 2003</i>	
	<i>Projected: 2001 COT</i>	<i>Expended: 2002 COT</i>	<i>Projected: 2002 COT</i>	<i>Expended: 2003 COT</i>	<i>Projected: 2002 COT</i>	<i>Estimated 2003 COT</i>
Hardware / Equipment	\$43,835,991	\$40,900,483	\$39,206,409	\$45,184,211	\$45,056,522	\$37,188,339
Instructional Software	6,481,647	5,715,504	6,193,943	6,551,992	12,784,064	5,076,642
Administrative Software	NA	NA	NA	3,723,996	5,486,401	6,609,342
Professional Development	4,379,409	4,295,303	4,544,669	6,697,674	7,901,721	7,438,076
Connectivity-Distance Learning	3,991,171	3,614,949	3,891,426	4,545,547	5,456,216	5,472,733
Technical Support	8,740,757	8,153,149	9,180,776	19,250,231	17,973,691	17,422,724
Infrastructure/Retrofitting/Other	NA	NA	NA	10,807,522	13,334,153	11,359,941
Other	1,586,870	3,123,583	1,466,997	NA	NA	NA
Total	\$69,015,848	\$65,802,971	\$64,473,220	\$96,761,173	\$107,992,768	\$90,567,797

Item 12 asked districts if they participate in the Universal Service Fund’s E-rate program, and item 13 asked what percent of the discounts/savings received by the E-rate program were used to support education technology activities and expenditures. Each year, MOREnet files an E-rate application on behalf of the 513 districts and state schools that participate in the statewide network project. Districts file separate applications for telecommunications, non-MOREnet related Internet costs, and internal connections. In 2003, 374 districts (71 percent) filed applications that received savings totaling over \$41 million. Less than 40 percent of the savings was used to support

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The 2003 Missouri School District Computing Census Building Census Report

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The 2003 Census of Technology collected data from 2,250 school buildings. The building-level data, like the district data, continue the improvement trends noted over the years. The 2003 Building COT was significantly revised and addresses 26 items, as compared to 44 items asked in 2002. A copy of the survey, completed with aggregate data, is provided in Appendix B.

Technology Planning

A school building long-range technology plan, like a district plan, should provide a road map to help the school implement strategies that promote the district's mission, advance district and building improvement plans, and improve the teaching and learning occurring in the building. As explained in the District Census Report, and as required by the Title IID Ed Tech Program, the Department developed a new state technology plan in 2002 and new scoring criteria for approving district plans. As such, fewer technology planning items were needed on the 2003 Building Census.

Items 1 asked whether a building has its own technology plan and, if so, whether it is a stand-alone plan or embedded in the district plan. Assuming that building plans should be integrated in a district plan, the item was reworded in 2003 to the "stand alone" plan. Table 10 indicates the percentage of school buildings that have technology plans, the percentage of building plans that can serve as a stand-alone plan, and those included in district plans. Data from 2003 show a continued trend in buildings having technology plans, starting with only 69 percent of buildings having plans in 1998 to 95 percent having plans in 2003.

Table 10

Status of Building Technology Plans, 1998-2003

	1998	1999	2000	2001	2002	2003
Building has a technology plan	69%	83%	86%	84%	85%	95%
Plan is part of the district technology plan	64%	96%	97%	86%	84%	94%
Building has a stand-alone plan	NA	NA	NA	NA	NA	6%

Item 2 asked buildings to identify any business or higher education institution with which they partner to support building technology. While only one in four buildings reported having a technology partner in both 2002 and 2003, this is markedly higher than the six percent reporting partners in 1998. Still, the 2002 figure is lower than the 29-30 percent that was reported consistently between 1999 and 2001. This drop might be due, in part, to worsening economic conditions across the state. Table 11 indicates the type and frequency of building partners reported for 2002 and 2003.

Table 11

School Building Technology Partners, 2002-2003

Buildings with Partners	2002	2003
College/University	256	290

Business – Technology Related	167	169
Business – Other	113	164

Technology Professional Development

While the 2002 Building Census had ten items on training issues, the 2003 COT has three. Item three asked buildings to detail the technology professional development hours being offered to building staff and faculty. In November of 1997, the State Board of Education established policy that requires buildings to allocate amounts equal to 20 percent of state technology grant funds for technology-related training. The policy went into effect for the 1998-1999 school year. The Title IID Ed Tech Program, begun in 2002-2003, requires that 25 percent of formula and/or competitive grant funds be earmarked for professional development.

Table 12 indicates the number of hours of training per training type and trainee and compares the data against last year's findings and the 1999 baseline data. The data indicate that schools increased their technology-related professional development offerings in 2003 – for all training topics, for both administrators and teachers. The topics with the largest increases since 1999 include curriculum integration for both teachers and administrators and teaching applications (instructional strategies) for teachers. The topics with the largest increase from 2002 to 2003 address curriculum integration and teaching applications for teachers.

Table 12

Education Technology Training Hours Offered, 1999, 2002, and 2003

<i>Training Type / Hours</i>	<i>1999</i>		<i>2002</i>		<i>2003</i>	
	<i>Administrator</i>	<i>Teacher</i>	<i>Administrator</i>	<i>Teacher</i>	<i>Administrator</i>	<i>Teacher</i>
Introduction to operations	4.2	6.3	5.38	7.64	5.81	8.22
Using software applications	9.9	16.3	10.77	14.70	11.69	16.23
Using Internet resources	5.4	9.1	6.36	9.39	6.79	10.20
Curriculum integration	4.4	8.1	7.06	10.79	8.35	13.98
Teaching applications	3.3	7.9	6.24	8.60	5.95	10.50
Using assistive devices	N/a	N/a	2.09	2.75	2.11	2.98

Item 3 was revised to also include training opportunities for support services staff. In 2003, support staff could participate in nearly 9 hours of training on using software applications, over 4.5 hours on using the Internet, 4.3 hours on introduction to operations, and 4.1 hours on curriculum integration. In response to item five, building contacts estimated an average of just less than four days (3.99) was offered in 2002-2003 for professional development activities where teachers could learn or upgrade their technology and computer skills.

Item 4 asked building contacts to estimate the technology-related skill levels of principals, teachers, technical staff -- and support services staff beginning in 2003. The skill levels are described as follows:

- ▶ Beginner – basic technical skills including applications such as word-processing, some stand-alone software, and some Internet usage (email).
- ▶ Intermediate – regular use of applications, software, and Internet resources for increased productivity and the use of applications including word-processor for student writing, research on the Internet, computer-generated presentations.
- ▶ Advanced – complete integration and mastery of the technology, using it effortlessly as a tool to accomplish a variety of learning, instructional and/or management tools.

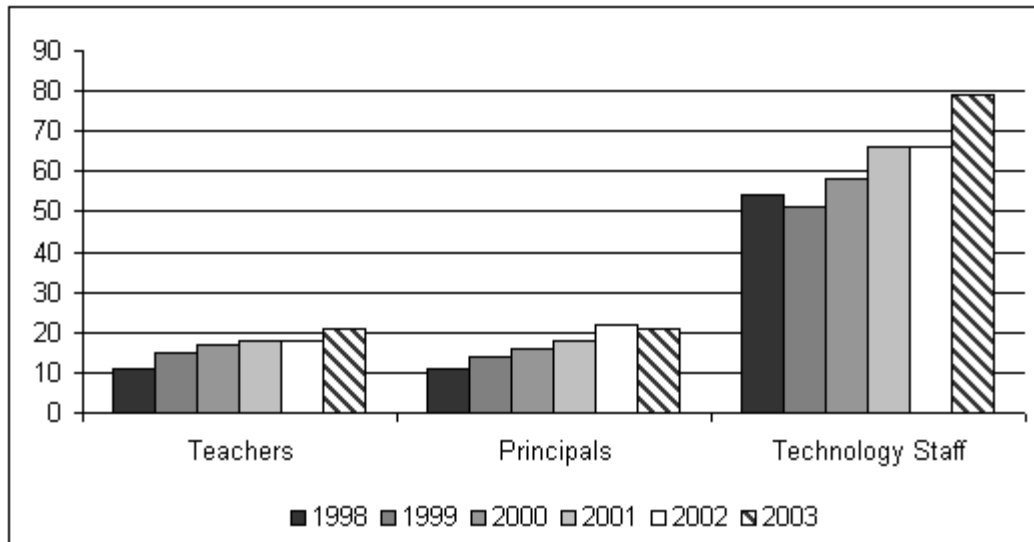
In 2003, approximately one-third (31 percent) of the school support services staff was estimated as having beginner technology skills, one-half (52 percent) as having intermediate skills, and one-sixth (17 percent) as having advanced skills. The proportion of teachers estimated as beginner technology users has steadily decreased from the 40 percent reported in 1999 to the 21 percent reported in 2003. Likewise, the rate of administrators (e.g., principals) estimated as beginners has decreased from 35 percent in 1999 to 10 percent in 2003. Accordingly, the percentages of staff rated to

have advanced skills have improved dramatically. The rates of teachers and principals reported as advanced users have nearly doubled from 11 to 21 percent. The group with the highest rate of advanced skills includes technology support staff, at 79 percent.

Figure 13 illustrates the increase in the percentages of teachers, building administrators, and technology staff rated to have advanced technology skills from 1998 through 2003. Not surprising, technical staff have the highest skills. Tailing behind the technical staff are school administrators who just outperform teachers.

Figure 13

Building Faculty/Staff with Advanced Skills, 1998-2003

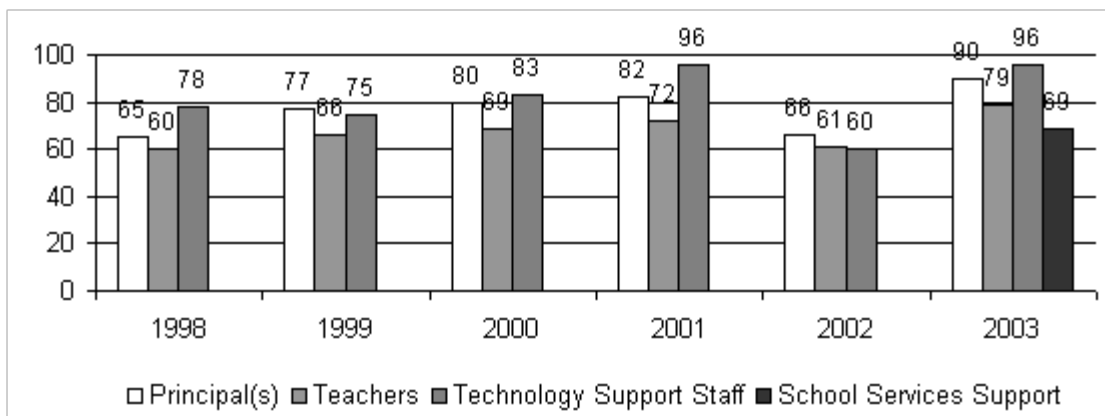


Support services staff was added to this item in 2003, with 17 percent rated as having advanced technology skills. While the lowest rate reported in 2003, the percent of support services staff with advanced skills is at about the same percent of teachers with advanced skills in last year's COT.

The differences among the user groups are somewhat less marked when looking at combined intermediate and advanced skills, as indicated in Figure 14. Almost all (96 percent) of the technology staffs have intermediate or better skills. Principals are close behind at 90 percent. And, about the same percent of teachers and support services staffs (79 and 69 percent, respectively) have intermediate or advanced technical skills.

Figure 14

Building Faculty/Staff with Intermediate and Advanced Skills, 1998-2003



Hardware and Support I

The 2003 Building COT had a total of eight hardware and support items. These were separated into two sections and covered on two screens, with four items per section/screen. The first section dealt with technical support staffing, computer types and quantities by location, operating and reader software, and library automation. The second section looked at equipment access and connectivity by location, quantities of various technologies located in the buildings, and the time to have technical problems/repairs resolved.

Item six asked about the number of estimated FTE available in the buildings that are directly responsible for technical maintenance and support. The item was revised to emphasize building-level staff and to get a more accurate picture of what and who are providing assistance outside of district-level staff. On average, buildings provided .30 technical support staff in 2003. This contrasts with the .63 average noted in 2002 – likely because of the change in the item's wording.

Table 15 indicates the types of FTE located in or available to the buildings, as reported in 2003. Most commonly, those responsible include district technical staff (true for 50 percent of the buildings), school building teachers or administrators (26 percent of buildings), school support services staff (19 percent of buildings), or outside vendors (18 percent of buildings).

Table 15

Persons and FTE Responsible for Building-Level Technical Support

Staff / Persons Responsible	Percent Buildings	
	<i>Responding</i>	<i>FTE</i>
District staff	50%	.32
School certificated staff	26%	.19
School classified staff	19%	.25
Outside vendors	18%	.21
Contractors	5%	.16
Students	5%	.08
Parents/community members	2%	.10
Regional centers	1%	.05

For item seven, data entry documents the number of computers in the buildings, by type and location. Computer “type” clustered machines by platform and speed / capacity. Locations included Computer Labs, specifically designated to computer work; Instructional Rooms, designated as classrooms, and Library/Media Centers, designated for library and media services.

As indicated in Table 16 below, a total of 270,368 building computers was reported in 2003, compared to 232,808 computers reported in 2002. Over 80 percent of the computers are PCs or PC-compatible, with 18 percent being Apple or Mac machines. Over 255,000 (95 percent) of these computers are considered capable of running the Internet at high speeds. [Computers with Pentium speeds is the minimum standard used to identify Internet-capable computers. Prior to 2002, the standard was 486 speeds or higher.] Approximately 90 percent of all computers are located in instructional rooms (computer labs, classrooms, and library media centers), with 92 percent of these machines considered Internet-capable.

The data indicate a subtle shift in the location of computers. Since 1998, about one in three computers was located in a lab setting, ranging from a high of 36 percent in 1998 to a low of 31 percent in 2003. The percentage rate of computers residing in classrooms has increased from 46 percent in 1998 to 51 percent in 2003. The shift is more noticeable when looking at the placement rates of computers within the instructional settings. In 2003, only 35 percent of “instructional” computers were located in labs as compared to 40 percent in 1998. The percent of “instructional” computers in classrooms grew from 51 percent in 1998 to 57 percent in 2003, a twelve percent increase in five years.

Table 16

Numbers, Types, and Location of School Building Computers, 1998-2003*

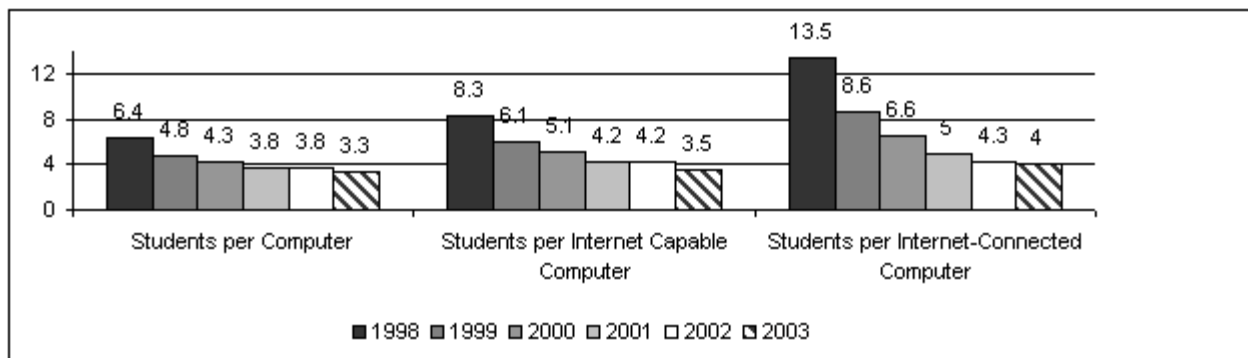
	1998	1999	2000	2001	2002	2003
Total number of computers (all types and speeds)	131,777*	176,148	206,864	237,115	232,808	270,368
Located in all Instructional Rooms	109,608	158,908	187,298	219,188	211,382	242,981
▶ Percent of all computers	90%	90%	91%	92%	91%	90%
Located in Classrooms	55,607	83,238	101,278	119,450	116,832	138,672
▶ Percent of all computers	46%	47%	49%	50%	50%	51%
▶ Percent of all instructional rooms	51%	52%	54%	54%	55%	57%
Located in Computer Labs	43,427	60,815	69,319	81,057	77,373	83,897
▶ Percent of all computers	36%	35%	34%	34%	33%	31%
▶ Percent of all instructional rooms	40%	41%	37%	37%	37%	35%
Equipped with Pentium/ equivalent or higher speeds	53,570	136,165	173,774	195,826	226,127	254,908
▶ Percent of all computers	44%	77%	84%	83%	97%	94%
PC or PC-compatible	77,231	120,888	148,473	177,916	185,901	221,285
▶ Percent of all computers	64%	69%	72%	75%	80%	82%

Total Computer statistic for 1998 was adjusted to estimate the entire population.

Figure 17 indicates the ratios of students to computer for 1998 through 2003. [Ratios are determined using the COT data regarding numbers and types of computers and Core Data fall enrollment figures.] As schools purchase new computers, older computers may be relocated within or surplussed out of the district. The numbers of computers in use continue to climb, resulting in a steady decline in the numbers of students per computers. Ratios are declining related to the number of students per high-speed (Internet-capable) computer and Internet-connected computer. The greatest decline relates to Internet-connected computers, as more and more buildings and computers are being connected to the Internet.

Figure 17

Student-to-Computer Ratios, 1998-2003



For item 8, building contacts entered the number of computers using specific operating systems and specific versions of Acrobat Reader. Table 18 indicates the operating systems being run by personal computers in 2003. With 82 percent of the computers listed as PC-compatible in Table 16, it is not surprising to find that Windows is the overall predominant operating system being used across the state. Approximately 80 percent of PC machines run on Windows 2000/Me or earlier. Nearly 90 percent of the Apple / Mac computers use OS 9.x or earlier operating software.

Table 18

Operating Systems of Building Computers			
<i>Computer Type / Operating Systems Used in 2003</i>	<i>Number of Computers</i>	<i>Percent of all Computers</i>	<i>Percent within Computer Type</i>
Windows	208,263	77%	94%
▶ Windows 2000/Me or earlier	176,776	65%	80%
▶ Windows XP	18,409	7%	8%
▶ Windows NT	13,078	5%	6%
Mac	49,368	18%	100%
▶ OS 9.x or earlier	44,167	16%	90%
▶ OS 10.x or later	5,201	2%	10%

Table 19 indicates the availability of Acrobat Reader software in the buildings. As mentioned in the District Census Report, the Department makes extensive use of .pdf files on many of the DESE websites. Data from the table indicate that Apple/Mac computers have Acrobat Reader software at higher rates than the PC machines. PCs that have Acrobat Reader are more likely to have the newer version.

Table 19

Acrobat Reader Software			
	<i>Number of Computers</i>	<i>Percent of all Computers</i>	<i>Percent within Computer Type</i>
PC Computers			
▶ Acrobat Reader 4.x or earlier	6,634	2%	3%
▶ Acrobat Reader 5.x or later	30,404	11%	14%
Mac			
▶ Acrobat Reader 4.x or earlier	17,304	6%	35%
▶ Acrobat Reader 5.x or later	21,101	8%	43%

Item 9 dealt with automated systems in place in the building library media centers (LMCs). Table 20 lists the systems predominantly used the past two years. While the top three systems remain the same for both 2002 and 2003, the numbers of automated libraries jumped dramatically. Only 237 of the 2250 buildings indicated not having an automated system in 2003.

Table 20

Acrobat Reader Software		
<i>Top Library Automation Systems</i>	<i>Number of LMCs</i>	
	<i>2002</i>	<i>2003</i>
Follet	153	696
Winnebago	133	362
Athena	85	322
Alexandria	25	156
Calico	24	53
Dynix	--	139

Hardware and Support II

To get a sense of what technologies are available to teachers and students, item 10 asked buildings to report the total

number of rooms and then the number of rooms equipped with different technology resources. Resources included having telephone access, being wired for Internet, having at least one multimedia computer, having at least one computer with dedicated (high speed) connection to the Internet, and having a complete teacher workstation that includes an Internet-connected computer, a dedicated projection device (LCD panel or some type of video projector) and access to a printer.

Table 21 provides a snap shot of building technologies located in computer labs, instructional rooms, and library media centers (LMCs) for the last two years, 2002 and 2003, compared to the base year of 1999.

Over all, computer labs and LMCs have greater access to education technologies than do the classrooms. One exception involves telephones, with 88 percent of LMCs having phone access in 2003 as compared to 63 percent of labs and 55 percent of classrooms. The other exception pertains to a full suite of classroom equipment, where the computer labs outscored the libraries.

By 2003, 84 percent or higher of all instructional rooms have access to multimedia and Internet-connected computers. The lowest rates of access, not surprisingly, involve having a full suite of technology available. These rates ranged from 21 percent of classrooms, 37 percent of libraries, and 52 percent of labs. Outside of the full technology suite, telephone access rates were the lowest. Compare telephone access rates that ranged from 55 to 88 percent to the high rates of Internet wiring that ranged from 96 percent of classrooms to 98 percent of the labs and LMCs.

Classroom technology data have improved substantially over the years. By 2002, the rate of classrooms wired for Internet matched the percentage of labs wired. By 2003 classrooms approached parity with labs with regards to having at least one multimedia and Internet-connected computer. Still, only about half of the classroom teachers have telephone access and only about one in five have access to a full suite of classroom technologies.

Table 21

Status of Specific School-Building Technologies
1999, 2002, and 2003

	<i>Computer Labs</i>			<i>Instructional Rooms</i>			<i>Library/ Media Centers</i>		
	<i>1999</i>	<i>2002</i>	<i>2003</i>	<i>1999</i>	<i>2002</i>	<i>2003</i>	<i>1999</i>	<i>2002</i>	<i>2003</i>
Total Number of Rooms	2824	3303	3723	49936	55142	60248	2025	2148	2319
▶ With Telephone Access	Na	61%	63%	Na	49%	55%	Na	85%	88%
▶ Wired for Internet Access	86%	96%	98%	74%	96%	96%	75%	93%	98%
▶ With a Multimedia Computer	77%	91%	93%	52%	85%	88%	75%	88%	90%
▶ With Internet-connected computer	72%	86%	91%	46%	79%	85%	68%	84%	89%
▶ With Connected PC and Teacher Workstation	43%	43%	52%	13%	18%	21%	32%	27%	37%

Of all the computers located in the labs, instructional rooms, and LMCs in 2003, 211,124 are multimedia equipped and 222,522 are connected to the Internet. These figures compare favorably to the 190,000 multimedia computers and 205,000 Internet-connected computers noted last year. If statistics for all of the buildings were relative, each classroom in 2003 had just 1.99 multimedia and 2.01 Internet-connected computers. The computer labs averaged 21.2 Internet-connected computers and 19.9 multimedia computers; libraries averaged 7.4 multimedia and 7.9 Internet-connected computers.

Item 12 asked buildings to report the numbers of a variety of other technology-related equipment located in the schools. Table 22 lists these technologies according to data collected in 2001, 2002, and 2003. Note that the 2003 statistics most

generally exceed the 2001 and 2002 statistics, especially for the newer, emerging technologies (e.g., digital cameras/recorders, digitizers, digital satellite receivers, interactive whiteboards, video/multimedia distribution systems).

Table 22

Building Technologies, 2001 - 2003			
<i>Technology Unit</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
Alpha Smart/Laptop Processors	6,311	7,110	9,458
Assistive/Adaptive Devices	2,978	1,095	1,493
Cable TV	13,991	17,234	24,972
CD-ROM Network	35,573	26,838	26,245
Computer Projection Devices	7,773	9,819	11,189
Digital Camcorders	Na	Na	1,164
Digital Cameras	3,940	5,205	6,528
Dot Matrix Printers	12,404	6,196	
▶ Dot Matrix Printers b&w	Na	NA	4,667
▶ Dot Matrix Printers color	Na	NA	336
Fax Machines	2,351	2,775	2,833
Graphing Calculators	27,279	24,244	25,895
Inkjet Printers	43,326	41,619	
▶ Inkjet Printers b&w	Na	Na	14,431
▶ Inkjet Printers color	Na	Na	35,101
Interactive Television	689	1,240	1,638
Interactive Whiteboards	1,027	1,989	3,102
Laser Printers	12,288	14,560	13,244
▶ Laser color	Na	Na	4,060
Laserdisc Players/DVD	5,680	5,849	7,484
Multimedia Distribution Systems	311	963	1,151
Personal Digital Assistants	250	925	Na
Probeware	1,405	1,121	1,210
Satellite Receivers	454	864	1,289
Scanners/Digitizers	5,133	5,848	6,957
Scientific Calculators	24,385	21,494	24,165
Total Color Printers	34,293	35,849	39,497
TV Monitors	41,683	42,032	45,270
VCR Units	37,701	36,084	40,760

Number 13, a new item added in 2003, dealt with technology maintenance and repair. About two-thirds of the building respondents indicated that it took one to three working days to resolve technical problems/repairs, while one-fourth responded that it took four to six working days.

Internet Connectivity / Distance Learning

This section of the COT deals with interconnectivity issues. Items 14 through 21 addressed building Internet connectivity, local- and wide-area networking, distance learning technologies, and policies regarding Internet use and filtering

software.

Table 23 profiles the data reported since 1999 regarding Internet access. Except for data reported in 2001, an increasing percentage of school buildings have access to the Internet through a dedicated, direct connection. Over 1,700 buildings reported having a T1 line in 2003, while another 152 buildings reported connecting to the Internet at higher speeds (via 10-45 mb, OC1 or greater, digital cable, or satellite).

Table 23

Building Internet Access, 1999-2003					
<i>Buildings that report having:</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
▶ Internet Access	95%	97%	79%	97%	98.5%
▶ T1	Na	1,386	1,390	1,621	1,759

Items 15 and 16 asked about operating systems used by and the services run on the building servers. As was found in 2002, Novell was the predominant operating system used in 2003, running on 930 servers, followed by Windows NT (479), Windows 2000 (320), Linux (236), and Apple share (229). Filtering (1,424) and email (1,328) are the two most common services run on the servers, followed by web hosting (1,117), firewall (792), proxy (666), and FTP (481). The most commonly used email software program used in 2003 included Groupwise (531), Eudora (184), Microsoft Exchange (127) and Mercury (123).

Items 18 and 19 dealt with networking issues. In 2003, building respondents estimated that 99 percent of the computers are connected to school building local area networks (LAN). Over 80 percent of the school buildings are connected to the administrative office and other buildings in the district through wide area networks (WAN).

Item 20 addressed the distance learning technologies available at the building level. The most commonly used systems in 2003 included cable television (1,371 buildings), desktop/IP technologies (1,107), and satellite programming (642). Less commonly used were interactive television (390 buildings) and compressed video (114).

Item 21 identified the Internet filtering solutions buildings used in 2003. All but 85 buildings (3.7 percent) indicated they used at least one software program. The most frequently used solutions were Cyber Patrol/ Surf Control (491 buildings), Sonic Wall (342), Border Manager (224), WebSense (217), Screen Door (201), and X-Stop/8e6 (179)

Technology Usage

The remaining Building COT items, 22 through 26, addressed how building faculty, staff, and students use the education technologies available and how technology is used to inform and communicate with others. Emphasis was placed on "routine" use, which is described as being used or implemented at least three times per week.

After a noticeable dip in 2001, technology usage data rebounded substantially in 2002 and further increased in 2003. As Tables 24, 25, and 26 indicate, technology usage data are the highest ever reported -- for almost every category and user type. The third cycle of the Missouri School Improvement Program (MSIP), which began in 2001-2002, started requiring districts to report these and similar data. Likewise, the updated (and much more rigorous) scoring guide used for state approval of district technology plans went into effect in 2002. Both of these accountability measures factor in the analysis.

Table 24 details technology usage for school building principals, in terms of the technologies they routinely use and the functions for which they use technology. As the data tables show, principals are heavy users of email and the Web. Over one-third of principals routinely use educational software, while less than a fourth routinely use online resources -- which is easily explained, as they do not typically carry a teaching load. Likewise, principals are more apt to use technology for research, writing, email, and student data manipulation than for curriculum and instruction. Areas where principals

showed the greatest increase from 2002 to 2003 include the use of technology to track student performance, manage student records, conduct research, and assess student performance.

Table 24

Routine Use of Technology by Building Principals, 1999-2003					
<i>Principals who Routinely Use the Following Resources:</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
▶ Educational software	37%	39%	34%	36%	41%
▶ Electronic mail	77%	85%	74%	92%	97%
▶ World Wide Web	69%	78%	71%	86%	94%
▶ EBSCO Host or other database(s)	21%	25%	24%	24%	27%
▶ Electronic encyclopedia	21%	22	22%	19%	20%
▶ Electronic/automated library catalog	Na	Na	Na	23%	26%
<i>Principals who Routinely Use Technology for the Following Functions:</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
▶ Produce media/presentation products	26%	29%	31%	43%	46%
▶ Produce written products	65%	68%	56%	67%	73%
▶ Conduct online research	57%	62%	58%	69%	79%
▶ Communicate with parents and students	53%	58%	48%	63%	73%
▶ Prepare lesson plans	8%	9%	13%	14%	16%
▶ Manage student records (spreadsheet/database)	61%	66%	60%	71%	81%
▶ Track Student Performance	49%	54%	56%	67%	78%
▶ Assess Student Performance	Na	Na	Na	58%	67%
▶ Communicate with peers, parents, experts, others	Na	Na	Na	Na	79%
▶ Deliver/present instruction	13%	18%	21%	28%	37%

▶ Complete online coursework	Na	Na	Na	Na	4%
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Table 25 illustrates routine teacher use of technology. In terms of the technology resources being used, nearly 90 percent of teachers routinely use email and Web resources. While over 75 percent of teachers routinely use educational software, less than half use online encyclopedia, databases, or electronic library catalog. As to reasons for using technology, over 75 percent of teachers typically use technology for writing, 74 percent for research information collection, 69 percent for keeping track of student performance, and 64 percent to assess student performance, manage student records, or prepare lesson plans. Areas where teachers show the greatest increases in routine use, from 2002 to 2003, include the use of technology to assess student performance, track student performance, deliver/present instruction, and conduct research. Interestingly, many of these were areas of greatest increases for building administrators/ principals as well.

Table 25

Routine Use of Technology by Building Teachers, 1999-2003					
<i>Teachers who Routinely Use the Following Resources:</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
▶ Educational software	69%	72%	59%	71%	76%
▶ Electronic mail	60%	69%	65%	82%	87%
▶ World Wide Web	61%	69%	67%	82%	88%
▶ EBSCO host or other database(s)	25%	29%	27%	31%	33%
▶ Electronic encyclopedia	41%	45%	36%	38%	40%
▶ Electronic/automated library catalog	Na	Na	Na	46%	49%

<i>Teachers who Routinely Use Technology for the Following Functions:</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
▶ Produce media/presentation products	20%	24%	29%	37%	43%
▶ Produce written products	62%	66%	60%	71%	77%
▶ Conduct online research	54%	59%	56%	67%	74%
▶ Communicate with parents and students	41%	46%	39%	53%	62%
▶ Prepare lesson plans	42%	47%	45%	59%	64%
▶ Manage student records (spreadsheet/database)	40%	45%	46%	56%	64%

▶ Track Student Performance	47%	52%	48%	61%	69%
▶ Assess Student Performance	Na	Na	Na	55%	64%
▶ Communicate with peers, parents, experts, others	Na	Na	Na	Na	50%
▶ Deliver/present instruction	20%	26%	29%	38%	46%
▶ Complete online coursework	Na	Na	Na	Na	5%

Table 26 depicts routine student use of technology. Of all user groups, students are the most likely to use educational software – at 80 percent compared to 76 percent of teachers and 41 percent for principals. Likewise, students use automated library services more frequently than other groups – at 57 percent compared to 49 percent for teachers and 26 percent for principals. While more students routinely use technology more than they did in 1999, they lag behind teachers and administrators in using the Web and email and in using technology to produce media or written products and conduct research.

Table 26

Routine Use of Technology by Building Students, 1999-2003					
<i>Students who Routinely Use the Following Resources:</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
▶ Educational software	76%	78%	62%	75%	80%
▶ Electronic mail	13%	15%	11%	14%	15%
▶ World Wide Web	50%	55%	52%	63%	71%
▶ EBSCO host or other database(s)	22%	25%	22%	27%	29%
▶ Electronic encyclopedia	41%	45%	36%	38%	44%
▶ Electronic/automated library catalog	Na	Na	Na	52%	57%

<i>Students who Routinely Use Technology for the Following Functions:</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
▶ Produce media/presentation products	18%	22%	23%	32%	37%
▶ Produce written products	58%	61%	52%	65%	68%
▶ Conduct online research	52%	57%	49%	59%	63%

Item 24 had respondents estimate the FTE positions available in (or available to) the school building for leadership in integrating technology into the curriculum. The item was revised to ask not only for the type of position providing such assistance, but also asking for the percentage of that person's time (FTE). Consistent with prior years, technology integration assistance is typically the charge of a district or building technology coordinator and/or building administrator. Overall, 1,601 buildings reported having a leader for technology integration, with an average of nearly three-quarters (.71) of an FTE.

Table 27

School Leaders in Integrating Technology into Curriculum		
<i>Position Providing Assistance</i>	<i>Percent Buildings Responding</i>	<i>Average FTE</i>
School Administrator	53%	.35
Technology Coordinator	49%	.32
Teacher(s)	46%	.28
Instructional Technology Specialist	24%	.34
Regional Professional Develop Ctr.	7%	.19
Library/Media Specialist	4%	.30

Item 25, added in 2002, asks the building contact to estimate the percentage of teachers who are able to fully integrate technology into curriculum and instruction. Full integration is defined as the ability to use instructional strategies that promote authentic project-based learning opportunities, student teamwork, collaboration and communication using technology in the classroom curriculum. Full integration is the goal of Missouri's eMINTS professional development program. In 2003, buildings reported that 41 percent of their teachers were able to fully integrate technology, as compared to 33 percent in 2001.

Item 26, also added in 2002, asked what technology-mediated feedback systems were used to help facilitate effective communication between schools and students and parents. Like noted last year, the most commonly used services included email and voice mail. In 2003, only 92 buildings indicated that they did not make use of any system. Table 27 indicates the systems in place both years, and shows a marked increase in the use of all the systems in 2003.

Table 27

Technology-mediated Feedback Systems in Place		
<i>Systems in Place</i>	<i>Number of Buildings Reporting</i>	
	<i>2003</i>	<i>2002</i>
Email	2,007	822
Voice mail	1,053	546
Listserv	354	28
Automated absentee calling system	296	179
Homework hotline via telephone	280	221
Homework hotline via Web	160	62

DESE 3370-13 1/04



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The 2003 Missouri School District Computing Census Appendix A

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D. Kent King
Commissioner of Education

Missouri Department of Elementary and Secondary Education
P.O. Box 480
Jefferson City, Missouri 65102-0480

N = 524

Missouri Census of Technology

DISTRICT Level Census (2003)

Please complete this census form to reflect building status as of **March 1**.

It is recommended that you make a copy of the completed census for your files.

If you have questions, please call (573) 751-8247 or e-mail: instrtech@dese.mo.gov

Contact Name:	Contact Title:
District Telephone #:	District Fax #:
Contact E-mail:	District URL:

PLANNING

1. Year district technology plan was last approved by the Department: 2001 (67) 2002 (16) 2003 (451)
2. List any business or higher education institution with which you partner to support technology. 163 (31%)
College/Universities (67) Technology Business (60) Other Businesses (16)

TRAINING

3. Identify any board-approved education technology standards and what populations must meet standards.

STANDARDS (Check ALL that apply)

423 (81%) Locally-developed
124 (24%) Adopted National Educational Technology Standards (ISTE)
43 (8%) Adopted Standards for Technological Literacy: Content for the Study of Technology (TEA)
30 (6%) Other
78 (15%) None

POPULATIONS (Check ALL that apply)

Students:	Teachers:
<u>305 (58%)</u> PreK-2	<u>372 (71%)</u> Administrators
<u>330 (63%)</u> 3-5	<u>402 (77%)</u> Teachers
<u>353 (67%)</u> 6-8	<u>319 (61%)</u> Support services staff
<u>311 (58%)</u> 9-12	

4. Estimate the percentage of administrators and support services staff, in the administrative building/office(s), at each skill level of technology use.

	Beginner %	Intermediate %	Advanced %	
Administrators	5,386 (11%)	33,855 (66%)	12,068 (23%)	51,309
Support services staff	7,725 (16%)	28,271 (58%)	12,419 (26%)	48,415

HARDWARE & SUPPORT

5. Estimate the total FTE of district-level staff responsible for technical maintenance and support of hardware.
1141.69 (2.18 Avg.)

6. Enter the quantity of computers, by type, currently used in the administrative building/office(s).

Apple/Mac	Number of Computers	PC Compatible	Number of Computers	
Apple 68040 or earlier	156	486 or earlier	512	
IMac	486	Pentium II or earlier	4,050	
G4 or other	234	Pentium III or later	7,315	
		Celeron	1,851	
		AMD under 450 mghz	419	
		AMD over 450 mghz	212	
Sub-Total	876 (6%)	PC Sub-Total	14,359 (94%)	Total=15,235

7. Enter the quantity of computers in the administrative building/office(s) currently using the following operating systems.

PC	Number of Computers	Mac	Number of Computers	
Windows 2000/Me or earlier	9262	OS 9.x or earlier	729	
Windows XP	1535	OS 10.x or later	197	
Windows NT	985			
		Acrobat Reader 4.x or earlier	253	
Acrobat Reader 4.x or earlier	2051	Acrobat Reader 5.x or later	197	
Acrobat Reader 5.x or later	4903			
Sub-Total	18736 (93%)	Mac Sub-Total	1376 (7%)	Total = 20,112

INTERNET CONNECTIVITY-DISTANCE LEARNING

8. Identify the operating system used on the administrative building/office(s). (Check ALL that apply)
- 75 (14%) Linux 152 (29%) Windows NT 28 (5%) Apple Share
285 (54%) Novell 131 Other (Please Specify) (see below) 20 (4%) None
 Other List: Windows 2000 (91 / 17%) Other Windows (12 / 2%) AS/400 (6 / 1%) Other Apple/Mac (2) Unix (3)

TECHNOLOGY USAGE

9. Technology is integrated in the following core content areas(s).

464 (89%) social studies 472 (90%) science 502 (96%) communication arts 469 (90%) mathematics

10. Estimate the percentage of the following populations the district provides email accounts.

POPULATIONS (Check ALL that apply)

Students:

Teachers:

(Number districts and average email accounts of districts reporting)

31 (70%) PreK-2

504 (95%) Administrators

58 (66%) 3-5

499 (92%) Teachers

81 (69%) 6-8

477 (79%) Support services staff

108 (52%) 9-12

76 (87%) Vocational-technical

11. Estimate the percentage of the district's 6th graders who are computer literate (able to perform basic computer operations).

88% Average / 95% Median

TECHNOLOGY FUNDING

12. Estimate the amount for which items were purchased or budgeted. (round to the nearest \$100)

Items Purchased or Budgeted	Last Fiscal Year	Current Fiscal Year	Next Fiscal Year
Hardware	45,184,211	\$45,056,522	\$37,188,339
Software - instructional	6,551,992	12,784,064	5,076,642
Software - administrative	3,723,996	5,486,401	6,609,342
Professional development	6,697,674	7,901,721	7,438,076
Connectivity/distance learning	4,545,547	5,456,216	5,472,733
Technical support	19,250,231	17,973,691	17,422,724
Infrastructure/retrofitting/other	10,807,522	13,334,153	11,359,941
Totals	\$96,761,173	\$107,992,768.00	\$90,567,797.00

13. Estimate the dollar value of the district's E-rate discount for the current year.

\$41,676,486 (374 districts, \$111,434 average)

14. Estimate the percentage of the discount used to support education technology. 61%

[Missouri Department of Elementary and Secondary Education](#)

"Making a positive difference through education and service"

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Phone: 573-751-8247 Fax: 573-522-1134

Last Revised: August 6, 2008

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The 2003 Missouri School District Computing Census Appendix B

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D. Kent King
Commissioner of Education
480

Missouri Department of Elementary and Secondary Education
P.O. Box

Jefferson City, MO 65012-0480

N=2250

Missouri Census of Technology

SCHOOL Building Level Census (2003)

Please complete this census form to reflect building status as of **March 1**.
It is recommended that you make a copy of the completed census for your files.
If you have questions, please call (573) 751-8247 or e-mail: instrtech@dese.mo.gov

Contact Name:	Contact Title:
School Telephone #:	School Fax #:
Contact E-mail:	School URL:

PLANNING

1. The school building has a technology plan. 2126 (95%) yes 120 (5%) no Stand-alone 137 (6%)
Integrated in district plan 1989 (94%)
2. List any business or higher education institution with which you partner to support technology. 544 (24%)
College/university (290) Technology-related business (169) Other business (164)

TRAINING

3. Enter the quantity of professional development hours offered this school year to school building staff to upgrade technology and computer skills in the following areas?

Training	Administrators	Teachers	Support Services Staff
	(Average hours)	(Average Hours)	(Average Hours)
Introduction to operations	5.81	8.22	4.30
Using software applications	11.69	16.23	8.67
Using Internet resources	6.79	10.20	4.60
Curriculum integration	8.35	13.98	4.12

Teaching applications	5.95	10.50	3.01
Using assistive technology devices	2.11	2.98	1.48

4. Estimate the percentage of administrators, teachers, technology support staff and support services staff in the school building at each skill level of technology use.

Faculty/Staff	Beginner %	Intermediate %	Advanced %
Administrator(s)	10%	69%	21%
Teachers	21%	58%	21%
Technology support staff	4%	17%	79%
School services support	31%	52%	17%

5. Indicate the number of days during the current school year that the school scheduled for professional development activities where teachers can learn/upgrade their technology and computer skills. 3.99 Days

HARDWARE AND SUPPORT I

6. Estimate the percentage of FTE in the school building responsible for technical maintenance and/or support of hardware.

<Percent Buildings Responding (and Average FTE)>

50% (.32) District staff

19% (.25) School classified staff

5% (.08) Students

18% (.21) Vendors

26% (.19) School certificated staff

5% (.16) Contractors

2% (.10) Parents/community members

1% (.05) Regional centers/RPDCs

1% None

7. Enter the quantity of computers, by type, currently being used in these locations within the school building?

	Computer Labs	Instructional Rooms	Library/Media Center	Principal Office	Other Locations	Total
Apple/Mac						
Apple 68040 or earlier	1274	6123	286	23	567	8273
Power Mac 5500 or later	1895	6309	607	416	580	9807
IMac	9793	13723	1697	105	1149	26467
G4 or earlier	1371	1999	638	57	471	4536
Sub-Total	14,333	28,154	3,228	601	2,767	49,083
PC Compatible						
486 or earlier	1382	4250	561	101	893	7187
Pentium II or earlier	20878	42060	6175	2306	5643	77062
Pentium III or later	33569	45283	7095	4575	7571	98093
Celeron	8348	11815	2079	816	849	23907
AMD under 450 mghz	1861	3166	311	185	231	5754
AMD over 450 mghz	3526	3944	963	386	463	9282
Sub-Total	69,564	110,518	17,184	8,369	15,650	221,285
Total	83,897	138,672	20,412	8,970	18,417	270,368

8. Enter the quantity of computers in the school building using the following operating systems.

	Number of		Number of
--	-----------	--	-----------

PC Compatible	Computers	Mac	Computers
Windows Systems	208,263	OS Systems	49,368
Windows 2000/Me or earlier	176776	OS 9.x or earlier	44167
Windows XP	18409	OS 10.x or later	5201
Windows NT	13078		
Acrobat Reader 4.x or earlier	6634	Acrobat Reader 4.x or earlier	17304
Acrobat Reader 5.x or later	30404	Acrobat Reader 5.x or later	21101

9. The library automation system is: Follet (696) Winnebago (362) Athena (322) Alexandria (156) Dynix (139) Calico (53), Follet Mandarin (17) None (237) Other (228)

HARDWARE AND SUPPORT II

10. Enter the quantity of ROOMS in the following locations, within the school building:

Number of ...	Computer Labs	Instructional Rooms	Library/ Media Center	Total
Rooms total	3723	60248	2319	66290
Rooms with telephone access	2353	32814	2041	37208
Rooms wired for the Internet	3629	57755	2261	63645
Rooms with one or more multimedia equipped computers	3449	52806	2091	58346
Rooms with one or more multimedia equipped computers with direct connection to the Internet	3388	51475	2064	56927
Rooms with one or more multimedia equipped computers with direct connection to the Internet, access to a printer, and a dedicated projection device	1921	12658	853	15432

11. Enter the quantity of COMPUTERS in the following locations, within the school building.

Number of ...	Computer Labs	Instructional Rooms	Library/ Media Center	TOTAL
COMPUTERS connected to the Internet	79049	125209	18264	222,522
COMPUTERS multimedia equipped	73983	120015	17126	211,124

12. Enter quantities for the following units/systems in the school building.

Alpha Smart/laptop processors	9458	Interactive television	1638	▶ Laser black/white	13244
Assistive/adaptive devices	1493	Interactive whiteboards	3102	▶ Laser color	4060
Cable TV connections	24972	Laserdisc players/DVD	7484	Probeware	1210
CD-ROM network	26245	Multimedia distribution system	1151	Satellite receiver	1289
Computer projection devices	11189	Printers:		Scanners/digitizers	6957
Digital cameras	6528	▶ Dot Matrix black/white	4667	Scientific calculators	24165
Digital camcorders	1164	▶ Dot Matrix color	336	TV monitors	45270
Fax machines	2833	▶ Inkjet black/white	14431	VCR units	40760
Graphic calculators	25895	▶ Inkjet color	35101		

13. The typical time frame for resolving technical problems/repairs is:

1443 (66%) 1-3 working days 530 (24%) 4-6 working days 141 (7%) 7-10 working days
64 (3%) 11 working days or more.

INTERNET CONNECTIVITY-DISTANCE LEARNING

14. Identify the bandwidth of the school building's connection to the Internet.

130 Less than HalfT 109 HalfT(768) 1759 T1(1,544) 89 10-45mb
30 OC1 or greater 28 cable modem 5 digital satellite 28 Other
11 None

15. Identify the operating system used on the school building's server(s).

236 Linux 479 Windows NT 229 Apple Share 930 Novell 97 None
Other (Please Specify) Windows 2000 (320) Windows XP (6) OSX (46)

16. Identify the services run on the servers.

1424 Filtering 1328 Email 1117 Web 792 Firewall 666 Proxy Server 481 FTP 166 Telnet 458 None

17. Identify the email software program:

531 Groupwise Netscape 176 184 Eudora 127 Exchange 123 Mercury 40 Notes 24 None
325 Other: First Class (71) QuickMail.Pro (41) Kinetic (29) Novell (28) Linux (25) Squirrel (24)

18. Estimate the percentage of computers connected to the school building LAN. 88% Average (99% Median)

19. The school building is connected to the administrative building/office(s) AND all other school building in the district through a Wide Area Network (WAN). 1796 (80%) yes 440 (20%) no

20. The following distance learning systems are available to students in this school building. (Check ALL that apply)

642 Satellite 1107 Desktop technologies/IP/MOREnet 390 Interactive TV (video classroom)
1371 Cable TV 114 Compressed video 180 None
Other (Please Specify): United Streaming (9)

21. Identify the filtering software/hardware used in the school building.

491 Cyber Patrol/Surf Control 342 Sonic Wall 224 Border Manager 217 Web Sense

201 Screen Door
36 DansGuardian
20 Proxy Server

179 X Stop/8e6
28 Surf Watch
14 Symantec/I-gear

121 Squid
27 CISCO PX

102 N2H2
21 SquidGuard
85 None

TECHNOLOGY USAGE

22. Estimate the percentage of administrators, teachers, and students in the school building who routinely use the following applications.

Applications	Administrator(s)	Teachers	Students
Educational software	41%	76%	80%
E-Mail	97%	87%	15%
World Wide Web	94%	88%	71%
EBSCO host or other periodical database	27%	33%	29%
Electronic encyclopedia	20%	40%	44%
Electronic/automated library catalog	26%	49%	57%

23. Estimate the percentage of administrators, teachers, and students in the school building who routinely use the computers for the following functions.

Functions	Administrator(s)	Teachers	Students
Produce media, web, or multimedia products to demonstrate learning	46%	43%	37%
Produce written or print products to demonstrate learning	73%	77%	68%
Conduct online research	79%	74%	63%
Communicate with parents and students	73%	62%	N/A
Lesson plan preparation	16%	64%	N/A
Manage student records (spreadsheet/database)	81%	64%	N/A
Track student performance	78%	69%	N/A
Assess student performance	67%	64%	N/A
Communicate with peers, parents, experts, others	79%	50%	N/A
Instructional delivery and presentations	37%	46%	N/A
Enrolled in online courses this year	4%	5%	N/A

24. Estimate the percentage of FTE positions(s) in the school building responsible for leadership in integrating technology into the curriculum. <Buildings Responding and (Average FTE)
49% (.32) Technology coordinator 53% (.35) School administrator 7% (.19) RPDC 9% (.16) Vendor
46% (.28) Teacher 24% (.34) Instructional technology specialist 4% (.30) Library/media specialist 15% None
25. Estimate the percentage of the school building's teaching staff who are able to fully integrate technology into curriculum and instruction. 41%
26. Identify the technology-mediated feedback system(s) used in the school building. (Check ALL that apply)

2007 Email

1053 Voice mail

354 Listservs

296 Automated absentee calling system

280 Homework hotline via telephone

160 Homework hotline via Web

251 Other

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Last Revised: August 6, 2008

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